ABSTRACT

A mechanism for maintaining the first-in first-out order of commands in a multiple-input and multiple-output buffer structure includes a command number generator for generating and assigning a command number to each command entering the buffer structure, and a command number comparator for comparing the command number of the outgoing command at each buffer in the buffer structure to determine which command should exit. Both command number generator and command comparator have a cyclic counter that has a period greater than or equal to the total number of allowable buffer entries in the buffer structure. For maintaining order of posted and non-posted command queues, a pending posted write counter is used in the posted command queue to record the number of pending posted write command and each entry in the non-posted command queue is associated with a dependency counter.